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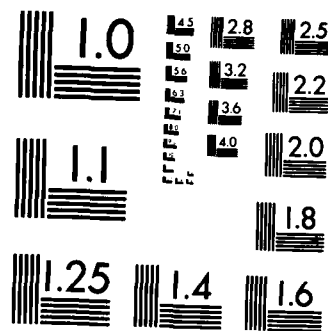
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Alan Platt and Alan Vick

December 1984

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NONNUCLEAR STRATEGIC WEAPONS:
IMPLICATIONS FOR ARMS CONTROL POLICY¹

Alan Platt

Alan Vick

The future acquisition of nonnuclear strategic weapons (NNSW) is likely to have profound consequences for a wide range of U.S. foreign and defense policy issues. This paper examines the implications of NNSW acquisition for arms control policy, focusing on the most salient technological, strategic and political considerations associated with the introduction of this weaponry.

Today's tactical precision guided munitions (PGMs) and sensor technologies may well be harbingers of a future wherein NNSW are an essential element in U.S. strategic forces.² There are already visible portents of this. In July 1983, for example, the U.S. Congress explicitly put itself on record in favor of certain advanced conventional munitions as compared to nuclear munitions when it deleted funding for the W82 nuclear projectile for the 155mm cannon and replaced it with \$50 million in new monies for improved conventional munitions.

This sort of substitution of conventional for nuclear munitions--or as some argue, competition between nuclear and conventional capabilities--is a growing phenomenon and is likely to remain so. In the near-term, NNSW will probably be deployed on a gradual basis for specialized missions. Cost, strategic and political considerations are likely to constrain the near-term acquisition and deployment of these

¹This paper was presented at the Rand Winter Study Conference hosted by the Strategic Air Command at Offutt Air Force Base, Nebraska, from April 2 to April 4, 1984.

²See "Contributions of Advanced Technology," in *Strengthening Conventional Deterrence in Europe: Proposals for the 1980s*, Report of the European Security Study Group, Carroll Wilson, Director. New York: St. Martin's Press, 1983.

weapons and associated delivery vehicles. However, if NNSW prove sufficiently versatile and cost-effective for a range of strategic missions and are increasingly brought into the U.S. arsenal, significant changes in military strategy, targeting policy and force requirements are likely. Changes in these dimensions will, in turn, inevitably influence the incentives for and the feasibility of efforts to control both nuclear and nonnuclear weaponry.

In considering the implication of NNSW for arms control policy, it is important conceptually to distinguish the near-term from the longer-term, for the conditions and considerations that are likely to pertain in the near future may be quite different from those relevant many years down the road. Accordingly, for the purposes of this analysis, two time periods are discussed: 1) a period over the next decade or so and 2) the long run. During the first period, a relatively small number of first generation NNSW are likely to be gradually acquired and deployed by the U.S. While important in both policy and planning terms, NNSW during this period will not be a highly significant consideration with respect to either U.S. defense or arms control policy. In contrast, in the long run, there might be sufficient NNSW onhand or planned to make these weapons a potentially major factor in American arms control and defense planning.

TRANSITION PERIOD

In many ways, this time period--from the present until roughly 1990--will be a transitional one with respect to NNSW. During this period, it seems likely that for a variety of reasons, the United States will acquire NNSW gradually, with the level and pace of American NNSW acquisition being driven by technological advances, military, budgetary, and political requirements, and the overall state of U.S.-Soviet relations. Here, it seems likely that the U.S.-Soviet relationship will continue, in essence, to be characterized by a high degree of competition. Coincident with this competition, though, there will undoubtedly be some cooperative initiatives, including efforts by the superpowers to enhance their security by negotiating limitations/reductions on armaments.

In recent years, U.S. arms control efforts, fueled by strong domestic political support for arms control in the abstract, have sometimes been out of synchronization with broader American foreign policy objectives. At times, for example, arms control has been pursued as a way to anchor a deteriorating American-Soviet political relationship. That was the case during much of the 1970s when aggressive Soviet behavior in places like the Horn of Africa was underplayed by the American government in order to further the conclusion and ratification of a new strategic arms limitation agreement.

Given this recent experience and widespread disillusionment resulting from it, it seems likely that during the course of the transition period, arms control will be closely synchronized with overall U.S. foreign and defense policy considerations. This means that arms control will not likely be far out ahead of broader U.S.-Soviet relations. This also means that arms control will not be pursued independently of broad defense and foreign policy considerations. Arms control is likely to be pursued, though, and it is highly probable that during the transition period, both bilateral and multilateral nuclear arms control negotiations will go forward. It is also likely that some strategic arms control framework, based on previous SALT-START efforts, will be in effect. While the exact nature of such an overall strategic arms control framework will undoubtedly evolve in the course of the transition period, it is probable that any agreed-upon limits will be largely quantitative, not qualitative, and these limits will set numerical bounds that will not dramatically curtail the ability of either superpower to carry out its anticipated military programs.

During the transition period, while the American public is likely to continue to strongly support nuclear arms control in the abstract and the U.S. government is likely to maintain some SALT-START regime and offer new arms control initiatives, continuing distrust of the Soviet Union is likely to ensure that the verifiability of prospective treaties is a dominant evaluative criterion. And adequate verification may prove increasingly problematic in the course of the next decade as systems become smaller, more mobile, and harder to find, especially as the

search for concealment techniques accelerates in an effort to maximize survivability.

These verification problems, which exist today and seriously complicate contemporary arms control negotiations, will undoubtedly be exacerbated by the acquisition of NNSW. Among other things, NNSW will make increasingly tenuous the distinctions between theater and strategic weapons that plague the START and INF processes. Of course, even prior to the acquisition of NNSW, these distinctions have become increasingly blurred in recent years.³ In part, also, this blurring has been traceable to the shift in American thinking about the need for increased flexibility in U.S. nuclear employment doctrine, flexibility needed to maximize deterrence by bringing U.S. strategic forces to bear in theater campaigns. In part, also, this blurring of distinctions between theater and strategic systems has been due to the technological evolution of the forces which has made simple categorization considerably more difficult. For example, the intermediate range Pershing II, ostensibly a "theater nuclear" weapon, can credibly attack "strategic" targets in the Soviet homeland and could be modified to carry nonnuclear warheads against either target category. All currently deployed strategic delivery vehicles are dual-capable (e.g., B-52s and FB-111s) or could be made so. Conventionally-armed SLCMs are already deployed on attack submarines and battleships; SAC B-52s have conducted operations in support of conventional forces for years. Furthermore, two squadrons of B-52G bombers (30 aircraft)--at Loring Air Force Base, Maine and Andersen Air Force Base, Guam--will soon be armed with Harpoon anti-ship missiles for maritime support operations, enhancing their effectiveness as open ocean reconnaissance/strike aircraft. The B-52s may carry as many as 20 Harpoon missiles each; tactical aircraft usually carry two Harpoons.⁴

³This problem was vividly illustrated during the Korean and Vietnam wars when "strategic" aircraft (B-29s and B-52s, respectively) were used in "tactical" support of ground forces, and "tactical" aircraft (F-84s and F-4s, respectively) attacked "strategic" targets. The U.S. Air Force is now formally addressing this issue, integrating all forces under the concept of "indivisible airpower." See Bennie L. Davis, "Indivisible Airpower," *Air Force Magazine*, March 1984, pp. 46-50.

⁴Howard Silber, "B-52s Being Armed With Navy Missiles," *Omaha World Herald*, February 23, 1984, p. 1. See also *Defense Week*, March 19, 1984, p. 6.

General Bennie Davis, CINCSAC, has noted that long-range aircraft (e.g., B-52s) "...can provide global nonnuclear responses--in a matter of hours--before and after U.S. and allied reinforcements are deployed forward."⁵ This force could deliver nonnuclear cruise missiles (ALCM), ballistic missiles (JTACMS), or gravity bombs.

Our NATO allies are also pursuing advanced conventional weaponry that will increasingly blur today's distinctions between theater and strategic and conventional and nuclear weapons. For example, the French firm MATRA is supplying 351 Durandal runway-cratering munitions to the U.S. Air Force (for delivery by tactical aircraft) and both Messerschmitt-Bolkow-Blohm (MBB) of the FRG and Hunting of the UK produce similar munitions. The United Kingdom and Federal Republic of Germany have approached the United States Air Force about arming the Tornado tactical fighter bomber with a conventional variant of the ALCM.⁶ These examples, among others, illustrate the growing international interest in highly sophisticated nonnuclear weapons and in using aircraft and missiles previously associated exclusively with nuclear weapons to deliver nonnuclear munitions and submunitions.

At the same time, some explicitly nonnuclear systems have attracted attention as possible nuclear delivery vehicles. For example, JTACMS--one of several new weapons concepts designed to enhance conventional warfighting capabilities and, thereby, raise the nuclear threshold--is viewed by some as both a delivery platform for exotic submunitions and as a tactical nuclear system (to replace the aging Lance). Support in the U.S. Congress for a nuclear JTACMS is problematic, although the Congress is demanding that JTACMS be based on either the T-16 missile (a variant of the Patriot SAM) or the T-22 (a variant of the Lance).⁷ The FY 1984 Defense Department Appropriations

⁵Bennie L. Davis, "Indivisible Airpower," *Air Force Magazine*, March 1984, p. 48.

⁶Transfer of the most advanced sensor and guidance technologies may prove awkward. The fear that the Soviet Union will acquire this know-how through the allies may dampen enthusiasm in the United States for NNSW technology transfer. German officials are reported to have already complained about restrictions on their access to guidance and airframe technology related to the cruise missile variant. See *Aviation Week and Space Technology*, April 2, 1984, p. 21.

⁷*Defense Week*, March 26, 1984, p. 5.

Bill, passed by Congress in November 1983, prohibited Pentagon funding of "research, development, test evaluation or procurement for integration of a nuclear warhead in the Joint Tactical Missile System (JTACMS)."⁸ This prohibition, however, failed to include Energy Department testing and development, and the Energy Department has tested and is continuing development of a nuclear warhead for JTACMS. However, the Congress seems unlikely to continue to fund over time procurement of a nuclear warhead for JTACMS.

Likely Congressional reluctance to fund additional nuclear warheads for the JTACMS notwithstanding, dual-capable systems are not going to go away. Greater integration of strategic and tactical and nuclear and nonnuclear weapons appears inevitable. Units commonly accepted as tactical are acquiring weapons with strategic potential and strategic units may soon make direct contributions to the ground battle. And this trend toward more versatile, longer-range and more accurate delivery vehicles and munitions, while presenting obvious military benefits, is likely to exacerbate current definitional ambiguities and verification barriers and point to the need for unprecedented cooperative measures for adequate verification in the future.

Strategic nuclear arms limitation treaties have previously required for verification purposes elaborate definitions of launchers, some functionally related observable differences (FRODs) between strategic and other systems, and tacit agreement not to impede national technical means of collecting information.⁹ Since launchers, not weapons, have been the relevant units of account thus far, treaty monitoring has been tractable. SALT counting rules required that all missiles and launchers of similar design be counted as the same type and if a launcher had ever

⁸Congressional opposition to dual-capable weapons also surfaced in the Nunn Amendment, prohibiting a nuclear version of the new 155mm artillery shell. See *Congressional Record*, July 13, 1983, pp. S9855-9862.

⁹National technical means of verification rely on multi-spectral sensors, covering wavelengths from visible light (e.g., photography) through infrared (e.g., thermal IR) and microwave (e.g., radar) to broadcast (e.g., electronic eavesdropping). These sensors are often, although not necessarily, space-based. Information gathered via these technical means is correlated with other sources, building--over time--a mosaic of military and industrial activities.

been tested with a MIRVed missile, it would always be counted against the MIRV subceiling. These counting rules have worked reasonably well, yet a number of issues have raised concerns. For example, the U.S. inability to count weapons has raised concerns about possible stockpiling of ICBMs and reloading silos during a war. Interest in achieving greater ICBM survivability through mobility has raised other questions about the definition of a launcher. And the deployment of truly mobile ICBMs may make verification without on-site inspection even more difficult than it is already.

Further, dual-capable delivery systems raise additional, new problems for monitoring in the future. Radiation detection is difficult due to range limitations. Infrared detection is tough because of ease of shielding. NSW might be purposely made distinguishable by design--therefore identifiable by photographic means--but current trends suggest little interest in this option. These problems may be particularly acute for cruise missiles. As William Kincade has noted:

[T]he capacity to locate, identify, count, and assess the operational characteristics of adversary weapons *with the degree of confidence desired for intelligence purposes*, while relying primarily on technical (rather than clandestine or penetrating) intelligence, will diminish overall. The very direction of weapons technology is thus away from, not toward, greater certainty in surveillance. While the existence of a family of cruise missiles may be known, the range, accuracy, **warhead type** and yield, probable target, and other vital characteristics of a particular deployed representative of that family may be ascertainable with much less certainty than is the case for large ballistic missiles.¹⁰

It should be pointed out, however, that adequate verification is both a political and technical concept. Political leaders will determine acceptable levels of risk for a given arms control regime based, among other things, on: the perceived political and military utility of any given agreement or set of agreements, the probability and military significance of undetected violations, the overall military balance, and the nature and quality of contemporary U.S.-Soviet relations. Moreover, during the transition period, despite the many

¹⁰"Over the Technological Horizon," *Daedalus*, Vol. 110 (Winter 1981), p. 116.

uncertainties associated with the verification of nuclear arms control agreements--uncertainties that will surely be exacerbated by superpower acquisition of NNSW--broad political and diplomatic concerns may well lead the U.S. to earnestly pursue new arms control accords.

These verification problems and the increasing acquisition of NNSW will undoubtedly increase pressures for comprehensive arms control negotiations that treat all nuclear-capable delivery vehicles as such. The SALT/START limits provide a precedent for this. Restricting most dual-capable long range delivery vehicles, SALT II constrains ICBMs, SLBMs and heavy bombers whether or not they carry nuclear warheads. B-52 bombers equipped with ALCMs are also counted against the subceiling restricting the number of MIRVed platforms. All ALCMs possessing a range greater than 600 km. are SALT-constrained. Ironically, although concern about verification difficulties was partly responsible for this ALCM restriction, neither GLCMs nor SLCMs have been restricted in a similar fashion. Thus, current NATO deployments of long range GLCMs in Europe and SLCMs of unknown range on attack submarines and battleships are permitted under the terms of SALT II, which is due to expire at the end of 1985. If SALT is adhered to beyond this date, deployment of NNSW in the course of the transition will undoubtedly produce strong pressures to raise the aggregate ceilings imposed by the SALT I and SALT II treaties so that NNSW deployments do not require one-for-one reductions in nuclear forces.

During the transition period, these considerations taken together will undoubtedly alter the incentives of the superpowers with respect to arms control. For one thing, because these new weapons are likely to be able to perform many or most of the military missions currently performed by nuclear weapons, they are likely to fuel enthusiasm for new nuclear arms control agreements. In addition, the onset of NNSW will undoubtedly complicate an already difficult arms control agenda, perhaps forcing such efforts in the direction of comprehensive negotiations that cut across heretofore distinct boundaries and weapon categories. Even if arms control initiatives remain directed at specific levels of "strategic" nuclear weapons and regions of the world, the acquisition or the prospect of substantial acquisition of NNSW will force the United States to integrate its planning for arms control in a much more

systematic way than has typically taken place thus far. Otherwise, various arms control efforts are likely to be increasingly carried forward at cross purposes. Finally, NNSW may further complicate the U.S. arms control agenda by raising the need for new arms control efforts. Fears that sub-national groups or nations that support terrorism will gain access to multi-capable, highly accurate delivery vehicles and use them to deliver advanced munitions will undoubtedly drive such efforts. And consideration of restrictions on the transfer of certain NNSW technology would be consistent with current and prospective U.S. efforts to stem the flow of militarily relevant technology to hostile or potentially hostile powers.

THE LONG RUN

Looking at the period beyond the transition, i.e., more than a decade away, there are obviously a number of uncertainties with respect to political, military, and technological considerations; and differing implications for arms control flow from different assumptions about this time period. For the purposes of this study--the focus of which is NNSW and their implications for arms control policy--three assumptions are made for the long run. First, it is assumed that both the United States and the Soviet Union will acquire--or have the capability to acquire--a sufficiently substantial number of NNSW so that these weapons are a highly significant factor in both U.S. and Soviet defense planning. Second, based on current and prospective technological advances, it is assumed that the United States will lead the Soviets in the acquisition of these new weapons. Third, it is assumed that efforts to ban or significantly limit NNSW through the conclusion of an international agreement will not have been successful during the transition period.

Concerning this last assumption, the inherent nature of nonnuclear strategic weaponry would seem to make unlikely an international agreement such as a nonnuclear proliferation treaty. Among other things, nonnuclear strategic weaponry does not raise quite the same kind of fearful, holocaust-like specter that is raised by nuclear weapons, a specter which fueled the international political momentum that produced the 1968 Nuclear Non-Proliferation Treaty. Also, these nonnuclear strategic weapons, by their nature, make a potential international arms

control agreement hard to define. What is a strategic nonnuclear weapon for the Federal Republic of Germany, for example, may not be a strategic weapon for the United Kingdom. Indeed, it is difficult to envisage what any near-term arms limitation treaty on NNSW would look like. Is a Maverick or a Harpoon or TLAM-N or Pershing II a NNSW? It is not clear. It is clear, though, that any agreement to limit NNSW will require new approaches to counting rules for verification.

Given these three assumptions, an instructive way to think about the implications of NNSW for arms control policy during the 1990s and beyond is to construct four future alternative regimes. These regimes are not intended to be exhaustive of possible futures. Rather, they are designed to illustrate and illuminate some of the more important political, military, and arms control interrelationships that substantial superpower acquisition or potential acquisition of NNSW might bring in the long run. While all of the nations of the world will be affected in one way or the other by substantial superpower acquisition of NNSW, the focus of the four regimes is limited here to considerations relevant to the U.S. and the Soviet Union. In each of the four regimes, arms control, the key variable, plays a different role--marginal, central, minimal, and moot. In each of these regimes, the U.S.-Soviet relationship is different, with arms control both feeding into and reflecting the nature of the overall superpower relationship. This approach has its weaknesses, for it is necessarily superficial and posits somewhat unrealistic ideal-types that are highly assumption-dependent. In reality, none of these four regimes is likely to describe the future *per se*. Nevertheless, this approach does help organize and take into account in a systematic way a number of future political, military, and technological uncertainties concerning NNSW and some of the different, possible environments in which NNSW might be acquired in the future. It also raises questions about and lays out for further analysis some of the different sets of implications of NNSW acquisition for arms control policy.

REGIME I

This possible future regime would be characterized by the substantial acquisition of NNSW by both superpowers, with arms control playing a role in U.S. defense policy similar to today. That is, under this regime, arms control policy would be a complement to national defense policy and would be widely seen, within the government and among outside experts, as a potentially useful policy path for the U.S. to explore and pursue. Opportunities for concrete progress in arms control would be tempered, though, by overall U.S.-Soviet relations, which would be essentially in conflict. This regime represents, in short, something resembling a straight-line extrapolation from the situation in 1984.

Under this regime, there would be a continuation of some sort of overall strategic framework, likely based on SALT-START established ceilings. Negotiations would go forward, in both bilateral and multilateral forums, to limit nuclear as well as nonnuclear weaponry. As an increasing number of NNSW were acquired, ongoing U.S. arms control efforts would increasingly take these new weapons into account. This might mean, for example, that the U.S. would try through the arms control negotiating process to raise established weapons ceilings. Among other things, it might also mean substantial substitution of nonnuclear weapons for nuclear ones, if the U.S. government decided that it was in its best interest to retain and adhere to existing aggregate weapon ceilings.

Under Regime I, modest limitations/reductions in the quantity and quality of nuclear weapons, NNSW, and conventional weapons are possible. Such limitations/reductions, if they were to come about, would most likely result from U.S. and Soviet governmental decisions to trade off or reduce certain categories of weapons. The forum through which such limitations would be achieved would likely resemble START or MBFR.

REGIME II

An alternative future regime would be characterized by the constrained acquisition of NNSW by both superpowers, with arms control playing a dominant role in U.S. defense policy. Under this regime, the U.S.-Soviet relationship would be characterized by a high degree of

cooperation in various areas of political, economic, and military activity. Arms control would be central to the security policy of both the superpowers.

Under this regime, cooperation would be the dominant theme in U.S. Soviet relations, and the acquisition of NNSW might further in important ways the overall superpower relationship as well as the role of arms control. For the acquisition of NNSW in substantial numbers, would likely force the superpowers to address directly and with some urgency definitional problems regarding weapons and verification ambiguities that cloud both U.S.-Soviet relations and current arms control efforts. For example, NNSW might ultimately propel the superpowers into defining with considerably more clarity "tactical," "theater," and "strategic" weapons as well as "conventional" and "nuclear" weaponry. To agree on precise definitions of these terms and associated weapon systems would likely require the superpowers' reaching agreement on highly intrusive, cooperative measures for the verification of any resulting arms control agreements. Thus far, such cooperative measures have been unachievable in arms control negotiations but they, and new forms of confidence-building measures, would likely be *sine qua nons* for the adequate verification of new arms control agreements that covered a wide range of dual-capable weapon systems.

Under Regime II, with superpower agreement on definitional ambiguities and cooperative verification measures might coincide with agreement on how to build NNSW that are distinguishable by design. Superpower agreement on building such dedicated weapon systems, while difficult to envisage in today's political environment, would be propelled by substantial American and Soviet acquisition of NNSW. Such agreement would immeasurably ease the verification of future arms control agreements, regardless of the specific types of cooperative modalities agreed on for verification.

Under Regime II, prospects for wide-ranging arms control agreements would be high. New and far-reaching nuclear arms control agreements regarding offensive and defensive weapons would be conceivable. Some limitations on the acquisition of NNSW would be likely. Arms control policy would be a vital, reinforcing element in a highly cooperative U.S.-Soviet relationship, helping bring a high degree of stability, predictability, and mutual confidence to U.S.-Soviet relations.

REGIME III

A third future regime would be the opposite of Regime II. This regime would be characterized by widespread and unlimited acquisition of NNSW by both superpowers, with arms control playing a minimal role in U.S. national security policy. Under this regime, the U.S.-Soviet relationship would be characterized by a very high degree of competition across a range of military, political, and economic activities. Arms control would, in fact, be of little concern to the superpowers.

Under this regime, with competition being the dominant theme in U.S.-Soviet relations, unfettered U.S. acquisition of NNSW would complement robust U.S. procurement of new weapon systems, both offensive and defensive. In so doing, substantial U.S. acquisition of NNSW would further complicate the already troubled state of the superpower relationship. Definitional problems and verification ambiguities that exist today concerning "theater" and "strategic" weapons, for example, would become intractable as an increasing array of NNSW were added to the U.S. and Soviet arsenals. Adequate verification of arms control agreements under these circumstances would become impossible. Current loopholes in existing bilateral agreements (i.e., the ABM Treaty and SALT II) and multilateral agreements (i.e., the 1925 Geneva Convention against chemical warfare) would be exploited to their fullest. Indeed, as both more and better NNSW were added to the inventories of the superpowers, arms control agreements--SALT I and SALT II, among others--would likely fall by the wayside. Aggregate ceiling limitations on weapon systems would be ignored or renounced as the superpowers came to realize that cooperative measures were politically impossible and adherence to agreed-upon limits could not be adequately verified by national technical means. In such a situation, the surveillance satellites of the superpowers, so critical to the verification process, would likely be under imminent threat.

Under such circumstances, new arms control agreements would be extremely unlikely. Whether regarding nuclear weapons or nonnuclear weapons, the superpowers' emphasis and focus would be on expanding, not limiting their respective arsenals. Indeed, under Regime III, the superpowers would be unambiguously competing in terms of both their

nuclear arsenals and their nonnuclear arsenals, the latter being a new area of open-ended U.S.-Soviet arms competition.

REGIME IV

A fourth possible regime would be characterized by the substantial but measured acquisition of NNSW by the superpowers, and the pursuit of the negotiated control of nuclear weapons would be moot. Under this regime, U.S.-Soviet relations might be characterized by a high degree of cooperation or alternatively, a high degree of competition. Negotiated efforts by the superpowers to control nuclear weapons would, for all intents and purposes, be of little operational significance.

Under Regime IV, nonnuclear strategic warfare would be seen as feasible. The United States and the Soviet Union would have acquired, or would foresee the acquisition of, a sufficiently versatile, lethal, and survivable NNSW capability so that these weapons could attack all or most strategic target sets. Nuclear weapons would be envisaged as being a reserve force for city destruction. Such a force would continue to be needed for at least two reasons. First, since NNSW are unlikely to ever be as effective as nuclear weapons against urban-industrial targets, a survivable nuclear reserve force would be necessary to deter escalation to the level of nuclear attack against American cities. Second, the political ramifications associated with the possible employment of nuclear weapons are so unique and profound that it gives these weapons political value well beyond their narrowly-defined military utility. Such weapons, for example, regardless of NNSW acquisition, will likely remain synonymous with superpower status for the foreseeable future.

Under this regime, while nuclear weapons are envisaged as being a reserve force for city destruction, NNSW are at the heart of the U.S. strategic defense posture. The acquired, substantial level of NNSW would be able to attack virtually all strategic targets with discrimination and with little attendant collateral damage. Perhaps of equal importance, the reliability of the entire weapon system could be safely tested. Much, although clearly not all, of the uncertainty about hard-target destruction by nuclear weapons might be removed if operational tests could be conducted in a safe manner.¹¹ For example, a

¹¹No test program, not even highly realistic attacks using

live NNSW could be launched from Vandenburg against an ICBM silo or command and control facility constructed on Kwajalein Atoll. Overall, the effects of NNSW against various targets could be determined in a more direct and reliable way than is currently possible with nuclear weapons, and as a result, much greater confidence could be achieved about wartime weapon performance. Today, and into the foreseeable future, such tests for nuclear weapons are precluded.

Under Regime IV, significant unilateral reductions in the superpowers' nuclear arsenals--at least from a military point of view--are possible. If substantial but measured numbers of NNSW were acquired and these weapons proved highly capable through observed tests, superpower incentives to expand or even maintain current nuclear arsenals would diminish. For, under these circumstances, there would be few reasons to employ nuclear weapons in the event that escalation to strategic conflict occurred. Indeed, the decreased utility of nuclear weapons combined with the versatility of NNSW could lead to something resembling a strategic "free market" wherein there would be reduced superpower concern about the size of the adversary's nuclear arsenal. Under such a situation, acquisition of nuclear weapons beyond those needed for a city-busting reserve force could well be seen as not being cost-effective since comparable monetary investment would buy more usable and hence more credible NNSW.

As the perceived strategic utility of nuclear weapons dropped and the superpowers unilaterally opted to reduce their nuclear arsenals, some of today's problems concerning verification ambiguities would fall away. For the adequate verification of an adversary's weapons would be of considerably less consequence as the superpowers unilaterally pursued their own defense through the acquisition of NNSW. Similarly, formal nuclear arms control negotiations and agreements would be moot because

operational equipment and regular (not test) personnel can come close to replicating combat conditions. Uncertainties about personnel, command, and system-wide performance will remain, even if reliable predictions about the viability of weapons systems and tactics were possible. Uncertainty, though, in certain circumstances can aid deterrence by rendering suspect calculations which "demonstrate" the utility of aggression. See Benjamin Lambeth, "Uncertainties for the Soviet War Planner," *International Security*, Vol. 7, No. 3 (Winter 1982/1983), pp. 139-166.

neither side would feel the need to constrain the other side's procurement of nuclear weapons nor, in fact, desire to possess substantial numbers of strategic nuclear systems themselves.

CONCLUSIONS

From the preceding analysis, it is clear that the acquisition of NNSW will have important and diverse implications for future U.S. arms control policy. However, it is impossible to reach a definitive judgment about these implications since such a judgment depends on the kinds of assumptions that are made about the future course of unknowable political, military, and technological developments. Varying assumptions, for example, about the performance of NNSW or the overall state of U.S.-Soviet relations will substantially alter the judgments reached. Further, the nascent state of research on the subject of NNSW generally suggests that the implications of NNSW for U.S. arms control policy is likely to remain uncertain for some years to come.

In the transition period, it appears as if definitional problems and verification uncertainties surrounding dual-capable systems will become increasingly significant and will have important implications for U.S. arms control policy. As the U.S. (and likely the Soviet Union) acquires more versatile weapons and delivery vehicles, currently blurred distinctions between "theater," "strategic," "conventional," and "nuclear" will become even more so. Indeed, if negotiated nuclear arms control agreements are to have a future in this next decade, the growing deployment of NNSW makes even more urgent the adoption of radically more intrusive verification methods. Yet, the political climate is not likely to permit such methods. Accordingly, the prospects for adequate verification--and consequently the conclusion of superpower nuclear arms control agreements--are likely to be limited. In reality, the ability of the United States in coming years to verify adherence to the kind of aggregate ceilings and sub-ceilings contained in SALT I and SALT II will likely diminish seriously. And to the extent that such aggregate limitations or reductions are considered valid and verifiable with the introduction of NNSW, there will undoubtedly be support for raising existent ceilings and not committing the U.S. in ongoing negotiations to policy courses that will unduly constrain future nuclear and nonnuclear

deployments. Under these circumstances, confidence and security-building measures similar to those being discussed at the ongoing Stockholm Conference on Disarmament in Europe may take on added importance. Restrictions on maneuvers, testing, and operations, for example, may replace limitations on weapons *per se* during this next decade.

In the longer term, the implications of NNSW for U.S. arms control policy will be driven by a number of critical, unanswerable questions. Among these, three questions are most salient. First, what will be the political impact of NNSW? It is possible to foresee at least two opposed answers to this question. On the one hand, it may be the case that politics will drive the acquisition of NNSW in a premature, unsystematic, and unwise fashion. Given current and prospective popular attitudes regarding nuclear weapons, it is possible to foresee strong political support in the United States and Europe for American acquisition of NNSW as a way to move away from reliance on nuclear weapons. And as more and better NNSW are added to the U.S. arsenal, there will undoubtedly be growing bureaucratic pressures to substitute NNSW for nuclear weapons. On the other hand, political forces might kill the procurement of NNSW. Currently, in a number of European countries, most notably the Federal Republic of Germany, anti-nuclear protestors are vehemently opposed to the introduction of new, technologically-sophisticated weapons systems into the West's arsenal. It is felt that these systems are unduly costly and, because they embody "exotic" new technology, they are inherently destabilizing. Such popular feeling, which is currently reflected in the parliaments in virtually all of the countries of the West, could lead to political pressures to slow or end the development and acquisition of NNSW. These pressures are likely to be strongest if NNSW prove to be very costly.

A second key question to be answered is, what will the Soviets do? It has been assumed throughout this study that the Soviets would move in the direction of acquiring NNSW following the American example, but that they would remain behind the United States. This assumption might prove to be wrong. On the one hand, the Soviets, not constrained by parliamentary pressures, might decide to go all out in the procurement of NNSW and in so doing surpass the pace and quality of American

acquisition of NNSW. On the other hand, the Soviets might decide not to acquire NNSW in substantial numbers and press the United States to severely limit the development and deployment of these systems. Either of these Soviet policy courses would have profound implications for U.S. arms control policy. The latter policy path would be potentially fruitful and potentially interesting to American policymakers should the Soviets include in their new arms control proposals innovative cooperative measures for verification.

A third key question concerns the relationship between the acquisition of NNSW and other weapons systems. For example, what would be the interrelationship between conventionally-armed and nuclear-armed ballistic missiles in strategic, political, and budgetary terms? Looking at the 21st century, a particularly important question in this regard would be the relationship between NNSW and strategic defense systems, including weapons based in space. These and other defense posture and strategy questions obviously raise important issues concerning deterrence, strategic doctrine, and verification, as well as arms control, but they cannot be answered easily any time soon.

Indeed, there are few conclusive answers to the question of what will be the implications of NNSW for future U.S. arms control policy. This line of inquiry, though, as suggested in this study, does raise a number of important issues that must be addressed in the future. For NNSW will likely be of increasing importance to U.S. defense planners in coming years.

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